

WHAT IS CLAIMED IS:

1. A method for fabricating a semiconductor integrated circuit device, comprising the steps of:
  - (a) preparing moisture at a first temperature from oxygen and hydrogen by use of a catalyst;
  - (d) transferring the thus-prepared moisture into a wafer heat treatment chamber of a batch processing vertical oxidation furnace to form a wet oxidative atmosphere around a plurality of wafers inside the chamber, while keeping the moisture in a gaseous state; and
  - (c) performing thermal oxidation to a silicon member over a first major surface of each of the wafers in the wet oxidative atmosphere in the wafer heat treatment chamber by heating the wafers up to a second temperature higher than the first temperature.
2. A method for fabricating a semiconductor integrated circuit device according to Claim 1, wherein said insulating film is a gate insulating film of an insulated gate field effect transistor.
3. A method for fabricating a semiconductor integrated circuit device according to Claim 2, wherein thickness of the gate insulating film of said insulated gate field effect transistor is not more than 5 nm, and gate length thereof is nor more than 0.25  $\mu$ m.

4. A method for fabricating a semiconductor integrated circuit device according to Claim 3, wherein the thickness of the gate insulating film of said insulated gate field effect transistor is not more than 3 nm.

5. A method for fabricating a semiconductor integrated circuit device according to Claim 1, wherein the first temperature is not more than 500°C, and the second temperature is not less than 800°C.

6. A method for fabricating a semiconductor integrated circuit device according to Claim 1, wherein the thermal oxidation is performed while providing the heat treatment chamber with said wet oxidative atmosphere.

7. A method for fabricating a semiconductor integrated circuit device according to Claim 1, further comprising the steps of:

- (d) prior to step (b), introducing the wafers into the heat treatment chamber while providing the heat treatment chamber with nitrogen gas; and
- (e) after step (c), drawing the wafers out of the heat treatment chamber while providing the heat treatment chamber with nitrogen gas.

8. A method for fabricating a semiconductor integrated circuit device according to Claim 6, further comprising the steps of:

- (d) prior to step (b), introducing the wafers into the heat treatment chamber while providing the heat treatment chamber with nitrogen gas; and
- (e) after step (c), drawing the wafers out of the heat treatment chamber while providing the heat treatment chamber with nitrogen gas.